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BLENNORRHOEA NEONATORUM.\*

BY ADOLF ALT, M.D.

WHAT an enormous amount of good has been accomplished by the method of *prophylaxis* against the disease called blennorrhœa neonatorum, which was introduced by Credé in 1881, you all know and need not be reminded of. He is, in my opinion, one of the great benefactors of mankind.

It is a great pity that here, out in the West, his method is certainly not practiced, nor, for that matter, any method of prophylaxis, as frequently and as thoroughly as it should be. Still, its influence is felt in the fact that cases of blennorrhœa neonatorum have of late grown decidedly less frequent. Yet not all that can be done in this direction is being done. A number of the States of our Union have enacted laws—and some quite stringent ones—concerning blennorrhœa neonatorum, with the hope of thereby exerting a beneficial influence. But thus far they seem to have accomplished but little, and they are probably as inert as many another good law, because nobody carries it out. It is not likely, in my opinion, that such laws will avail much in connection with the disease under consideration until both physician and public are educated up

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\*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.

to them, until they know the causes of the disease, the possibility and almost certainty of its prevention by the proper methods of prophylaxis, and, finally, how to deal with the cases when these measures have been neglectfully omitted, and I may add to this, until both physician and public are thoroughly imbued with the fact that an eye lost by blennorrhœa neonatorum is a damning reflection on one or both of them.

In the following I do not intend to carry coals to Newcastle and to deliver before this assembly a lecture on blennorrhœa of the newly born. I only want to draw your attention to some of the facts concerning this disease, which have been elucidated in the last quarter of the past century, and which, it seems to me, are of very great practical value.

It is not new to you that the term "blennorrhœa neonatorum," like many names in our medical terminology, includes more than one form of disease; in fact is applied without any distinction to certain diseases of the conjunctiva appearing in the newly born and which, as we at present understand it, may be due to widely different causes. The name simply applies to a symptom—the running of a purulent discharge—which, though a very prominent and characteristic feature in these affections, gives no clue whatever as to the real origin in the individual case. Twenty-five years ago no doubt entered the mind of most oculists with regard to the origin of this affection. Gonorrhœa, and gonorrhœa alone, of one or both parents, was considered to be infallibly its cause.

We now know better, and we may well feel ashamed at many a mental wrong we did in our ignorance.

This improved knowledge is due to systematic bacteriological examinations. Such have been made in cases of blennorrhœa neonatorum and reported by a number of observers, like Haab, Kroner, Axenfeld, Schnitdt-Rimpler, and others.

At the meeting of this Association, held at St. Louis, in 1897, Dr. F. T. Reyling reported a series of bacteriological examinations made by him in fourteen cases of blennorrhœa neonatorum. He found the gonococcus of Neisser in only nine of these cases; in four it was absent. For years I have made bacteriological examinations of the pus in every case of blennorrhœa neonatorum which I saw in my private practice. I have records of seventeen cases. In nine of these I found the

gonococcus of Neisser, in four cases the diplococcus lanceolatus of Fraenkel, in one case a short bacillus which was probably the bacterium coli, in the remaining three cases only some staphylococcus.

Most recently (in *Graefe's Archives*, Vol. LII., Part I.) Groenouw, of Breslau, reports a series of one hundred cases of blennorrhœa neonatorum which he examined bacteriologically, having previously in another paper reported forty of the cases. This is probably the largest number any one man has had occasion to so examine. He found the gonococcus of Neisser in forty-one cases only; in five cases the diplococcus lanceolatus of Fraenkel; the streptococcus pyogenes in two cases; the staphylococcus pyogenes aureus in four cases; the micrococcus luteus in one case, and the bacterium coli in seven cases. In about one-third of Groenouw's cases no specially typical pyogenic bacteria were found.

By adding Reyling's and my small series to Groenouw's, we find that in only sixty-one cases out of one hundred and thirty-one of blennorrhœa neonatorum, the gonococcus of Neisser was found, which is in less than half of the total number.

In all of these cases the differential diagnosis had been made by means of Gram's method, which, as you know, decolorizes the true gonococcus.

The results of these examinations show what we should never forget—that it is our duty to always examine the discharge from the conjunctival sac, not only in blennorrhœa neonatorum, but in all conjunctival and corneal affections, at least if we want to be scientific physicians and want to adapt our therapeutic measures to the individual case, as we always should.

From these considerations we can no longer consider it scientific treatment if we—as most text-books will still have it—simply apply a one or two per cent. solution of nitrate of silver in every case in which there is a purulent discharge from the conjunctiva.

We now know that the severe cases of blennorrhœa neonatorum—those that cause very violent symptoms, endanger the cornea and do not yield very rapidly to treatment—are usually due to the gonococcus of Neisser. The lighter forms, which

yield more readily to treatment, are usually due to some other microbe. Although there are exceptions to this, as a general rule I think it holds good.

Let us see now in what way these considerations will, and necessarily must, influence our measures, both of prophylaxis and treatment.

While the now classical prophylactic application of a drop of a two per cent. solution of nitrate of silver to the conjunctiva of the newly born, as introduced by Credé, has done an immense amount of good, is it always necessary, or perhaps at all necessary, to use so strong a solution? I suppose all of you have—I certainly have—seen cases in which a few days after the application of the Credé method an infant had a decidedly purulent discharge from the conjunctival sac. There was perhaps little œdema of the lids and the discharge was not very profuse, yet the picture presented was that of a milder type of blennorrhœa neonatorum. If in such a case no bacteriological examination is made and the treatment with nitrate of silver kept up, a blennorrhœa due only to the chemical and traumatic influence of this salt will simply be perpetuated. I have in some such cases found no pyogenic microbes at all, and especially no gonococcus, and they got well rapidly on discontinuing the nitrate of silver treatment and substituting for it a mild antiseptic eye-wash, besides cold applications.

I have no doubt that such cases have been observed wherever Credé's method is regularly applied. They are not very frequent and no particular harm is produced, yet they seem to speak against the promiscuous use of the classical two per cent. solution of nitrate of silver—not, as I want to be distinctly understood, against the method of prophylaxis. The question only remains, whether we must insist on the application of so strong a solution.

In a paper published by Dr. Lucien Howe in the March (1898) number of the *AMERICAN JOURNAL OF OPHTHALMOLOGY*, in which he advocates the enforcement by law of Credé's method in public institutions, this author says: "It is true that a remedy *better* than silver nitrate may be discovered at any time, but if this happened the law could easily be changed." This evidently shows a certain degree of dis-



satisfaction with the routine application of Credé's method, although among 24,000 cases of the application of this method, collected by him, disagreeable results seem to have followed in only four doubtful ones.

If I understand the theory of the action of a one or two per cent. solution of nitrate of silver in the treatment of gonococcic conjunctivitis right, it destroys by its caustic action the older and superficial epithelial cells and thus brings the younger cells in which the gonococcus is usually lodged to the surface and thereby more directly under its bactericidal influence. At least we were so taught in former years, and hence the rule to apply this remedy but once in twenty-four hours; that is, when the eschar it had caused should have been cast off. If this is true, why should not solutions of remedies, which will not coagulate the albumen of the superficial layers of the epithelium, and which therefore can penetrate at once into the deeper layers and directly reach the gonococcus, prove of more immediate and, therefore, of greater value?

In an article on gonorrhœal affections of the eye (*Berlin Klin. Wochenschr.*, February 11th, 1901) Greeff mentions that in 1887 already Behring stated that in three cases of recent gonorrhœa he had succeeded in destroying the gonococcus by only three injections of a solution of nitrate of silver of only 1 in 7500 (about 1 grain to 16 ounces). Bacteriologists tell us that nitrate of silver in the proportion of 1 to 4000 kills the gonococcus. Greeff further states that a one-fourth per cent. solution of nitrate of silver is probably sufficient for all prophylactic purposes. He also argues that the stronger solutions cause a superficial coagulation, which is an obstacle to the deeper penetration of the germicide.

Yet, when applied right after birth as a prophylactic measure, there is probably never any need of a deeper penetration, since the gonococcus has as yet hardly had time to pierce the superficial layers.

The old and almost generally accepted method, as you know, was to treat any and every case of blennorrhœa neonatorum, regardless of its real origin, with the daily application of a from two to five per cent. solution of nitrate of silver. I may state that I have never used it any stronger than in a

one per cent. solution, because I have always had a suspicion that the stronger solutions helped in the production of corneal ulcers.

To be sure, we know now that the gonococcus can, when it is undisturbed, and the discharge is allowed to remain stagnant in the conjunctival sac, by its own action gain an entrance into the superficial epithelial cells and thus cause an ulceration. Yet how much easier is this when a superficial wound, so to speak, throws the doors wide open for its entrance? This may be brought about by the macerating action of stagnating pus on the superficial epithelial cells, or by superficial and even microscopical scratches on the corneal surface produced by the physician or attendant during the manipulations for cleaning the conjunctival sac or for treating the conjunctiva. It may equally well follow the application of strong solutions of nitrate of silver which, when they reach the corneal epithelium, in spite of our trying to guard against it, will coagulate the superficial cells and cause their necrosis. From this reasoning I have never used a stronger solution of nitrate of silver in these cases than a one per cent. one, and the cases in which a corneal ulcer was formed while they were under my treatment have been extremely few.

It is a common experience that the cases of blennorrhœa neonatorum differ very greatly as to their degree of virulence as well as to the time it takes to cure them. I have seen cases which took six weeks and even more of careful and watchful treatment with nitrate of silver to get well, and again I have seen cases cured in comparatively few days, say a week, with a mild antiseptic eye-wash, as for instance bichloride of mercury 1 in 10000. This difference in behavior, which we could formerly attribute only to a different degree of virulence of the gonococcus in the particular case, is now by means of our bacteriological knowledge explained in a more natural manner and better understood. As a rule the virulent cases, which yield only more or less promptly, but probably best to treatment with a silver salt, are of gonococcus origin. On the other hand, in those cases which are of a mild type and generally yield easily and speedily to a mild antiseptic treatment of some kind and cold applications, we do not find the gonococcus but some other pyogenic microbe or no known

one at all. The cases of a medium type are often due to the *diplococcus lanceolatus* or the *bacterium coli* (Groenouw).

This knowledge must necessarily influence our therapeutic measures. At least I have of late adhered to some such principle in my practice. Greeff (*loco citato*) seems still to adhere to one and the same method in all cases when he states that in his clinic at the Charité at Berlin the cases of blennorrhœa neonatorum are successfully treated by a one-tenth per cent. solution of nitrate of silver. Since I have made bacteriological examinations of the pus in blennorrhœa neonatorum I have in my treatment been governed by their results. While I have still in some cases, in which I found the gonococcus, relied on a one per cent. solution of nitrate of silver, I have of late replaced this altogether by a one, two or three per cent. solution of protargol, a remedy which I decidedly prefer, contrary reports by others notwithstanding. As we know by experiment, this preparation of silver penetrates deeper into the tissues than nitrate of silver, because it does not, like it, act as an escharotic. It is also but very little irritating and causes almost no pain—two points which I, however, grant are of little importance in the treatment of the conjunctiva of infants. However, instead of making only one application in twenty-four hours, as with nitrate of silver, I order the protargol solution to be instilled into the eye, after the removal of all pus by manipulation by the attendant, from four to eight times in twenty-four hours, besides one application of it by myself. This treatment I can conscientiously recommend, as I have seen even several gonococcus infections get well with it in the course of two weeks. Cases in which I can find no gonococcus do usually well with frequent instillations of a 1 in 10000 bichloride solution, or even a four per cent. boracic acid solution with cold compresses. When they do not quickly respond to this treatment I use a one per cent. protargol solution instead.

One of the greatest benefits of our modern improved and continually improving knowledge is that it teaches us, as physicians, better and better to individualize the cases entrusted to us and to institute our treatment accordingly. As this method of acting is the only scientific one, it is our bounden duty in all cases to adopt it, and not to continue in

the old methods which come from our fathers, who, with all their great achievements, did not have the advantages of knowledge which we have, and let us hope will continue to have, in an ever-increasing quantity for the benefit of mankind.

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### AN UNUSUAL COMPLICATION OF OPHTHALMIA NEONATORUM.

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THE subject of this sketch, a baby of six months, came under observation with a history of having had ophthalmia neonatorum, beginning two days after birth, running the usual course for two or three weeks, and recovering under the care of the attending physician.

After the inflammatory action incident to the infection of the conjunctival sac had subsided, it was noticed that the left upper lid was completely inverted, the whole line of lashes sweeping the cornea at each movement of blinking and remaining inverted when the lid was at rest—either closed or open.

The attending physician, supposing that the deformity could be corrected by such a procedure, removed an elliptical piece of skin from the surface of the lid and drew the wound thus made together by three sutures.

This procedure was, of course, unsuccessful, and the deformity remained as before, with the added difficulty that in sleep the infant's eye did not completely close.

Upon examination the above condition was found, and upon everting the lid the cause of the defect was seen to be an adhesion between the conjunctiva, in the neighborhood of the retro-tarsal fold, with that covering the tarsal plate as far forward as the lid border. The adhesion was complete, it being impossible to pass a probe under it.

The correction of the defect was brought about by first dissecting up the conjunctival adhesion and then doing the Hotz-Anagnostakis operation for entropion and completing the procedure by placing a mucous membrane graft from the under lip of the child's father upon the raw surface left from



the dissection of the conjunctival adhesion. The complete operation was done at one sitting under chloroform anaesthesia.

Healing of the skin incision was by first intention. The mucous membrane graft adhered and grew, and the deformity was completely corrected and has remained so since, now some six months.

### ULCUS RODENS CORNEÆ; WITH AN ACCOUNT OF A SPECIAL BACILLUS.\*

BY DR. EDUARDO ANDRADE,

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*Abstracted by S. M. Burnett, M.D., Washington, D. C.*

IN this paper Dr. Andrade gives a full account—clinical and bacteriological—of one of the rarest corneal affections. So uncommon is it that many text-books do not mention it at all, and others treat it as a form of *ulcus serpens*, from which, however, it has numerous points of difference. It occurs once in about every ten thousand patients on a general average. In Genoa, among 30,000 cases it has been noted but twice. Jany, in Breslau, saw it but once in 66,000 cases. To Mooren, of Düsseldorf, belongs the honor of having first described it as a distinct disease in 1867. Hillemans, in Bonn, published a full account of all the thirty-five cases which had been reported up to date of publication of his paper in the *Arch. f. Augh.*, B. XV., October, 1899. The case of Andrade is typical. It occurred in a man of 37 years, who seemed to be in good health. The trouble began with redness, lacrymation, and pain in the right eye. The condition, when seen for the first time, was as follows: The center of the cornea was transparent, while its margin was hidden under a highly vascularized tissue, which looked as if the conjunctiva had extended over the corneal edge. The whole circumference of the cornea was implicated. The portion of the cornea lying between the band of vascularization and the transparent central tissue was occupied by a whitish ring, which represents a zone of infiltration and ulceration occupying the superficial layers of the

\**Annali di Ottalmologia*, Vol. XXIX., 1900.

cornea. The edge towards the clear cornea is excavated, the epithelial layer hanging over the edge of the ulcer. The vascular band at the corneal margin is not the same at all parts; at the upper external portion the newly-formed tissue had a granular appearance, with here and there yellowish nodules, and the conjunctiva itself was thickened and granulating with a few nodules of a grayish-yellow color and was detached from the underlying tissue. The condition was not so pronounced at the other parts of the corneal base. At the inferior segment of the cornea, however, the newly-formed vascular tissue was devoid of epithelium. The anterior chamber appeared deeper than that of the fellow eye, because the cornea had yielded to pressure and become more convex. There was no hypopyon. The pupil under a mydriatic showed a slight adhesion of the iris to the lens-capsule. The media were clear, and the fundus, which was visible, showed no change from the normal. V. =  $\frac{1}{20}$ , Tn. The only complaint was a sense of burning and lacrymation. The sensibility of the cornea was diminished. The treatment instituted was three subconjunctival injections of sublimate solution of about 1 cc. each, eight days apart. After the first injection the margin of the ulcer was cauterized by means of the galvanocautery. After the first injection the appearance was much improved, and after the third the process was manifestly arrested, the bottom of the ulcer cleared up, and the vascularization diminished. The complete healing left a circular, semi-transparent cicatrix. There has been no return at the end of five months.

Other observers have searched for a specific germ and have failed to find anything distinctive in the bacteriological findings. In the last issue of the *Arch. of Oph.*, March, 1901, Schmidt-Rimpler, of Goettingen, gives an account of a case which came to an enucleation and to a histological examination, and states that no bacteria could be discovered in the corneal tissue. Andrade has been more fortunate and has discovered a special bacillus, which he has isolated and cultivated. He first made a culture from a piece of tissue in glycerated agar. After twenty-four hours colonies of staphylococcus pyogenes albus had developed. After four days there was found a bacillus, which being transferred to other

media and carefully studied, showed the following characteristics: It has the form and about the size of the bacterium coli, but in the older cultures in Loeffler's serum some are found shorter but thicker. In both cultures they are observed to be united by their extremities, forming chains. Sometimes they are placed as in the diplo-bacillus of Morax and sometimes side by side without any regularity. The bacilli have great motility. The reproduction is by means of round spores which are seen at the ends of the rods, sometimes laterally near the end. The bacilli are colored by the method of Gram and other methods usually employed in bacteriology, such as those of Ziehl, Loeffler, and Roux. Blood serum prepared after the method of Loeffler is the best means of cultivating the bacillus. In from twenty-four to forty-eight hours after infection of the culture there is noticed a transparent scum which covers the surface of the serum along the track of infection, which gradually extends itself over the entire surface, assuming a corrugated appearance, while at the same time extending somewhat into the depth of the culture substance. In the meantime the serum has become softer and at the end of six or eight days is liquified with an alkaline reaction. This appears to depend upon the development of the spores. In agar-agar the development is slower and more difficult than in serum, but pursues essentially the same course. In gelatin this liquefaction is very slow and in layers. Cultures in the capsule of Petri are similar to those in agar. On the potato the culture does well, forming an almost invisible, transparent layer, as often happens with the typhoid bacillus, so that if there is not a certain amount of humidity of the surface one might doubt its presence. In simple or lactated broth it develops well without any influence on the reaction. In glucosated broth the development is less rapid, but it acidifies it. Its reaction with nitrate of soda and sulphuric acid is negative. It does not cause fermentation in glucosed or lactated media, but acidifies the glucose media. When cultivated in air deprived of its oxygen by the action of pyrogallie acid in a solution of caustic potash it develops very slowly without showing the thin layer before described. Even after fifteen days the medium remains solid. It preserves its vitality at a temperature of 75°. Inoculation of the anterior chamber of a rabbit

with a piece of the morbid tissue failed to develop any characteristic morbid process. Infection of the cornea with a serum culture both at the periphery and at the center produced at the end of 24 hours a keratitis very similar to that of the original disease in the patient. The ulceration was superficial, without any hypopyon, and healed by an advancement of the conjunctival vessels from the periphery. These experiments were repeated a number of times and always with the same result, and in two cases it was possible even after six days to get a pure culture of the bacillus from the cornea so affected. A microscopical examination of the enucleated rabbit's eye showed the existence of a microtic keratitis without any important necrotic areas. In Schmidt-Rimpler's case mentioned above the eye came to an enucleation and the result of the microscopic examination is given in three very satisfactory drawings, showing the extent of the ulceration and the infiltration of the surrounding parts with round cells. The cornea was nowhere perforated, but maintained from one-half to one-sixteenth of its normal thickness. It also showed the undermining of the ulceration at the margin next the clear cornea. There was an actual elevation of the epithelium which was at first unaccompanied by any infiltration of the corneal tissue. At the periphery the hypertrophied vascular tissue was found to be composed of a proliferation of epithelium and a great development of new blood-vessels. Andrade thinks the bacillus has a special quantitative and qualitative power, in so far as its action *in situ* does not manifest itself by a true necrosis *en masse*, but rather by a circumscribed cellular mortification, its action at a distance being expressed not by the migration of purulent leucocytes, but rather with a tendency to stimulate the production of new vessels.

In an appendix to the original paper Andrade gives an account of a case very similar clinically to the first and with the same bacillus as a cause. The inoculation experiments made in the first case were repeated and with the same results, and under the use of a solution of cyanide of mercury applied locally, together with hot applications, the disease is showing rapid improvement.

The author regards the disease, though very slow in its course, not essentially malignant, but amenable to gentle



treatment. The characteristic symptomatology of the disease, Andrade concludes, is due: (1) To the fact that the morbid process is limited to the sulcus at the corneo-scleral margin, whence its tendency to extend itself around the base of the cornea and the formation of new ulcers at the limbus. (2) The feebleness of the toxic action of the bacillus (?), whence the scantiness of the infiltration, the limitation of the ulceration to the surface of the cornea, and the tediousness of its course. (3) The difficulty of attacking directly the focus of infection which is hidden under the excavation of the inner edge of the ulcer, and the tumefaction of the tissues at the limbus. Good photographic pictures are given illustrative of the bacillus itself and the appearance of the infected culture medium.

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#### EXPERIMENTAL STUDIES ON THE RECLINATION (COUCHING) OF CATARACTS.

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*Translated by Adolf Alt, M.D.*

RECLINATION of cataracts, which for many centuries had been practiced by the eye surgeons of all nations as the only method of operation for cataract, has of late been cast aside by scientific ophthalmologists, so that in most of the text-books this operation is not even mentioned.

In spite of this, this method continues in existence, and is even to-day largely practiced, of course by men who have nothing in common with science. We need only mention the Indian and Turkish operators, whom Hirschberg<sup>2</sup> and Argyll-Robertson<sup>3</sup> have written about, and the widespread employment of this method among the people of Bosnia-Herzegovina (Mader),<sup>4</sup> and its use in the middle Asiatic and trans-Kaukasian regions of Russia, in which wandering Indians and Persians perform this operation.

<sup>1</sup>Klin. Monatsbl. f. Augenh., February, 1901.

<sup>2</sup>Centralbl. f. Augenh., 1894.

<sup>3</sup>Indian instruments for couching cataract. Edinburgh Med. Jour., 1896.

<sup>4</sup>Wiener Kl. Wochenschrift, 1898.

In the literature of the last years we continually find records of the fact that even men of science occasionally have recourse to this abandoned method. Thus in 1882 Andrew<sup>5</sup> employed this method of reclinacion in a case of incomplete dislocation of the lens of traumatic origin. In 1886 Rampoldi<sup>6</sup> employed it successfully in four cases; Businelli,<sup>7</sup> too, favors reclinacion in some cases. In 1898 Valude<sup>8</sup> made a successful reclinacion in the right eye of a woman 73 years old, in whom an extraction appeared to be too risky, since the left eye had been lost from spontaneous hæmorrhage after cataract extraction. Finally, lately at the International Congress at Paris, Truc<sup>9</sup> again raised the question of the admissibility of the reclinacion of cataracts in cases in which from some reason other operative method appears doubtful, as, for instance, in cases like that of Valude, when there is a tendency to hæmorrhages into the vitreous body, in idiots, alcoholics, restless persons, and finally in animals. In the discussion on Truc's paper it became apparent that Panas, Dor, and Gayet think that reclinacion has been undeservedly abandoned and may be of great service in some cases, which fact they proved by relating such cases from their practice.

The reason for the striking of the method of reclinacion from the list of the scientific methods of operation, as is well known, was the experience that this method led to more frequent complications than the other methods of cataract operations.

When we consider that, with the exception of some incomplete, gross-anatomical observations of older authors (Arlt<sup>10</sup> and Beer<sup>11</sup>), and a few of recent date (Iatropoulos<sup>12</sup>),

<sup>5</sup>Dislocation of the lens, with remarks on the old operation of couching. *Brit. Med. Jour.*, 1882.

<sup>6</sup>E ancora indicata in qualche caso la depressione della cataratta? *Ann. d'Ophalm.*, 1886.

<sup>7</sup>Caduta d'un nucleo di cataratta nella camera anteriore 3 anni dopo l'abassamento nel vitreo. *Jabresber. f. Ophth. XVIII.*, p. 375.

<sup>8</sup>*Annales d'Oculistique.*, Jan., 1899.

<sup>9</sup>Deux cas d'abaissement de la cataracte. *La clinique ophthalm.*, 1900. No. 16-17.

<sup>10</sup>Graefe and Saemisch, v. III.-IV.

<sup>11</sup>*Lehre von d. Augenh.* Wien, 1817.

<sup>12</sup>Fungös hæmorrhagische Iridocyclitis in Folge von Depression einer cataracta senilis. *Die ophth. Klinik*, 1900, N. 12.

no exhaustive microscopical examination of the changes in eyes after reclination of cataract have been made which might have explained the causes of these complications, we may well think that what we have experimentally found and are reporting in this paper concerning this question may not only have a historical scientific interest, but from the remarks made above, even may be well-timed. This interest must be the greater, since ophthalmologists are now often in a position to observe cases in which reclination has not been made by the hand of a surgeon, but by different accidents—so-called cases of dislocation of the lens into the vitreous body, in some of which the eye is lost, while in others for some reason vision is retained and the eye is simply aphakic.

We have experimented exclusively on rabbits. We first employed the method of reclination through the sclerotic with a straight, lancet-shaped needle, but found at once an insurmountable obstacle, as with this needle no normal, clear rabbit's lens can be reclined, since at the very first attempt at pressure the needle enters the lens and, if further pressure is exerted, passes through it.

In consequence of this we constructed a special instrument in the shape of a thin ellipsoid spatula, the curvature of which corresponded with that of the rabbit's lens, with dull edges, and which was three mm. wide and about one cm. long. It had a cylindrical neck which five mm. from the spatula was bent at an almost right angle and fastened at some distance from this in a common ivory handle. If this instrument is held in such a manner that the handle is directed upwards and the spatula to the left, its convexity looks backwards and its concavity forward. In order to remove the resistance of the zonule of Zinn, the operation was performed according to a method which has been employed by many authors (Schifferli, Himly, Weinhold). With its handle directed upwards the instrument was introduced into the vitreous body through an opening in the sclerotic, which was made in the right eye a little nasally, in the left a little temporally from the cornea and a little below the respective recti muscles, then it was pushed to the posterior surface of the lens. Then it was passed over the upper edge of the lens to its anterior surface, in doing which the upper fibres of the zonule of Zinn were

ruptured. Now the lens could be easily reclined into the vitreous body by pressing on its upper half.

Some time after the operation (19 to 160 days) the rabbits were killed with chloroform, the eyes enucleated and treated with 4 per cent. formalin, embedded in celloidin and examined microscopically.

We made 24 experiments. We will detail the clinical picture, which was not exactly the same in all cases, before going to the description of the pathological changes.

The operation was easily successful in most of the cases. It was in all of the cases followed by slight symptoms of irritation, as hyperæmia of the iris, pericorneal injection. This disappeared usually after from seven to ten days; in a few cases it persisted and even passed over into an iridocyclitis. In three cases this iridocyclitis was purulent and progressed to panophthalmitis.

In most of the cases the reclined lens rose after a while to the region of the pupil. In six cases only it remained lying flat on the lower wall of the eyeball. This tendency of the lens to rise and return to its normal position can be easiest explained by an incomplete rupture of the fibres of the zonule of Zinn; or, perhaps, by a stretching of the hyaloidea and stroma of the vitreous body without rupture; thus the elastic tissue of the vitreous body could easily press the lens back into its old place. This was also the explanation given by Arlt, as the rising of the lens after reclination was often observed by the older operators.

The pathological changes observed in the rabbits' eyes after reclination were not always the same.

The changes in 21 of the 24 cases may be classed in the following manner: (1) Obliteration of the iris-angle; (2) inflammation in the uveal tract and retina; (3) detachment of retina.

Obliteration of the iris-angle was seen in six cases. In one of these the whole iris-angle was obliterated. This obliteration was due in one case to the adhesion of the iris-periphery to Descemet's membrane by means of an exudation from the iris and ciliary body (iridocyclitis); in all other cases the lower periphery of the lens pressed the ciliary processes and the iris periphery against Descemet's membrane.



The second important change is the inflammation of the uveal tract, especially iridocyclitis, and in some cases panophthalmitis. Of these we saw six cases. Its cause was, as proven by microscopical examination, an accidental coccus-infection which took place during or after the operation in spite of all disinfecting measures.

The third and most frequent change was the detachment and subsequent degeneration of the retina. This was observed in all but five cases.

The manner in which the detachment occurs may be the following: On the one hand the instrument, which is entered through the sclerotic, as well as the lens during the operation must tear the stroma of the vitreous body. This leads to shrinking; on the other hand the connective tissue formed when the wound heals, also, leads by its shrinkage to shrinking of the stroma of the vitreous body with decrease of pressure, and thus favors detachment of the retina. This formation of connective tissue we found in many of the specimens, and we could see its origin from the spindle-cells which grew from the recent scleral scar into the vitreous body.

In the cases in which no detachment occurred the microscopic examination made a long time after the operation proved that the stroma of the vitreous body and the hyaloidea were normal. Among these were three cases in which there was no infection and no pressure of the reclined lens against the ciliary processes and iris periphery—i. e., completely successful cases of reclination.

Changes found in the reclined lenses were: disintegration of the fibres, vacuolization, deposits of lime, irregular proliferation of the capsular epithelium, proliferation of the elements of the nucleus arch, and general shrinkage of the lens. This latter was most apparent when the capsule had been intentionally or unintentionally ruptured. In rare cases the unruptured lens showed but insignificant changes, and in some with complete rupture of the capsule the cortex and muscles were perfectly absorbed. Incarceration of the lens at the bottom of the eye, as has from clinical signs been described by some authors, we have never seen. Where the lens lay upon the retina, this membrane and the choroid were almost totally changed to connective tissue and the lens capsule was firmly agglutinated to them.

Thus, the examination of these rabbits' eyes after reclinaton showed detachment of the retina in 79 per cent., iridocyclitis in 25 per cent., obliteration of the iris-angle also in 25 per cent.; only in 12.5 per cent. of the cases no serious pathological changes were found.

Since no scientific statistics of the successes of reclinaton are in existence it is impossible to say exactly what the percentage of losses from reclinaton was in man. It may be that this percentage was not so very high, as we have found it in the rabbit. It is Hirschberg's opinion, who particularly studied the question of reclinaton, that under favorable conditions the percentage of successful cases may reach up to 50. As to the character of the complications, our experimental data correspond very well with what resulted in former times from reclinaton in man. The difference is that the older authors mention iridocyclitis in the foremost place, then detachment of the retina, glaucoma and sympathetic inflammation, while in our experiments detachment holds the first place. Yet this may be explained in this way. Even with all antiseptic precautions in our experiments infectious iridocyclitis occurred; how much more frequent must have been such infections at a time when nobody thought of antiseptis and asepsis. The most frequently used instrument for reclinaton in man was a sharp needle, which very often must have ruptured the capsule. We know further, and it is proven by experimental studies, that all infectious traumata of the eye which are accompanied by a lesion of the lens, are more serious than others, and that they lead to panophthalmitis on account of the rapid development of the micro-organisms in the lens substance. On the other hand it is easily explained why now-a-days, in cases of reclinaton in man which are aseptically made by a trained hand, the percentage of infectious complications may be reduced to a minimum.

The fact that detachment of the retina is observed somewhat less frequently to follow reclinaton in man is easily understood when we consider the difference of the conditions under which this operation is performed in man and in animals. In rabbits' eyes undoubtedly a much greater traumatism was inflicted to the vitreous body than in the eye of man, for the reasons that the rabbit's lens is much larger in proportion

to the size of the eye, and that the instrument we used in our experiments was much larger than those used in man. In consequence the vitreous body was torn to a much greater extent than in the eye of man, and therefore detachment of the retina must of necessity happen more frequently and be of larger extent.

The reclinations which authors called successful because no detachment of the retina occurred are to be explained by the fact that during the operation the vitreous body was either not torn or had been fluid before. In the first case the lens sinks down to the bottom between the hyaloidea and retina, severing the vitreous body from the latter without rupturing it (*depressio cataractæ*). In the second case, on account of the previous degeneration of the vitreous body, it cannot be ruptured, and therefore no shrinkage can take place. Some such cases have been reported in literature (*Businelli*). Since liquefaction of the vitreous body alone cannot cause detachment and since this liquefaction accompanies a chronic choroiditis, by which choroid and retina are locally glued together, it is clear why a loose lens in the liquefied vitreous body is comparatively innocuous.

In summing up, we can say that the experimental studies confirm the clinical judgment concerning reclination, that this operation causes a great many more complications than extraction, and that it is successful in a small percentage of the cases only through the absence of the causes for these complications—a thing which cannot previously be determined. It is, therefore, *a justly abandoned method of cataract operation*. The only cases in which this operation has been employed by scientific surgeons are justified solely by peculiar circumstances and the impossibility of employing other methods of cataract operation. In such cases, as proven by our experiments and theoretical reasoning, depression of the cataract is rather to be advised than typical reclination, since it can be done with less trauma to the vitreous body.

Considering the cases of dislocations of the lens into the vitreous body without injury to the membranes of the eye, which are really cases of reclination or depression not performed by man's hand, but by an external injury, we can state that among these successful cases occur in which the eye be-

comes simply aphakic and retains vision, as well as unsuccessful cases in which the eye is lost in consequence of the different complications. Successful cases have been reported by Andrew,<sup>13</sup> Snell,<sup>14</sup> Chisolm,<sup>15</sup> Ljubinsky<sup>16</sup> and others. Several examinations of eyes which had been lost (Hasner,<sup>17</sup> Pr. Smith,<sup>18</sup> Habben<sup>19</sup> and others) show that the complications following dislocation of the lens are also detachment of the retina, iridocyclitis and glaucoma.

We believe that the cases of dislocation of the lens with a favorable ending can be explained just like those of reclinacion. In these cases the vitreous body was either not ruptured or it had been fluid and degenerated before the accident. In cases in which the membranes of the eye are not injured the vitreous is probably much less injured than during reclinacion; no instrument is entered into the vitreous body and the mechanism of dislocation cannot be compared to the forcible pressing of the lens into the vitreous body, as practiced during reclinacion. In traumatic dislocation the lens probably simply sinks down or glides to the place of least resistance. It is quite probable that during such an injury the vitreous body with its hyaloid, if only for a moment, is lifted from the membranes of the eye, and that the lens sinks into this space between ora serata and vitreous body when its suspensory ligament has been torn. In this manner we explain such cases in which the dislocated lens remains immovable at the bottom of the eye.

It is probable that in many of the cases of dislocation with favorable ending which have been reported the vitreous body was previously liquefied, since this has happened more frequently in myopic eyes. In such cases the lens may be movable without causing detachment of the retina.

<sup>13</sup>Loco cit.

<sup>14</sup>Jahresber. Ophth. XIII., p. 459.

<sup>15</sup>Jahresber. f. Ophth. XIII., p. 292.

<sup>16</sup>Westnik Ophthalm., 1898.

<sup>17</sup>Prag. Med. Wochenschr. 1882.

<sup>18</sup>Jahresber. Oph. XIV., p. 499.

<sup>19</sup>Diss. Jena, 1897.

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ERRATUM.—In Dr. Adolf Alt's paper in the March (1901) number of this journal, Figures 3 and 4 on page 68 have by mistake been reversed.



## CORRESPONDENCE.

### THERAPEUTIC VALUE OF SUPRARENAL EXTRACT.

MEMPHIS, TENN., April 2, 1901.

Editor AMERICAN JOURNAL OF OPHTHALMOLOGY.

*Dear Sir*—In the last number of your journal there was an article from Dr. Alt on "Adrenalin," in the course of which he said that the remedy was without therapeutic value in diseases of the eye. While this is undoubtedly true in most instances, I wish to mention a case which I have recently seen in which the opposite was demonstrated.

Mr. W., while coming to town on a street car, was taken with a violent burning pain in the right eye. This increased during his trip, and he came directly to my office, arriving there about twenty minutes after the first symptoms were perceived. I found a very violent conjunctivitis, with profuse lachrymation and intense palpebral and bulbar injection. Of course the first thought was of a foreign body, but there was no scratching, and careful search failed to find one. I first instilled a few drops of a four per cent. cocaine solution, and then a few drops of a solution of Armour's suprarenal extract, ten grains to a dram of saturated solution of boracic acid. In a few minutes the eye was of perfectly normal appearance and felt just as comfortable as the other one. I expected the symptoms to return as soon as the effect of the drug wore off, and directed that he go home and stay indoors. Before he left the office I made an application of nitrate of silver (two per cent.) to the lids. He was to report to me by telephone that afternoon. He did not do so, and I did not see him again for several days, when I met him on the street. He then told me that the injection and discomfort had never reappeared, and the eye had remained white and comfortable ever since he left my office. He had gone home, but that afternoon had felt well enough to return to his office and had experienced no inconvenience. I attribute the result to the suprarenal extract, and believe the secret of its felicitous action was in its being applied so soon after the inflammation began.

Yours very truly, E. C. ELLETT, M.D.

## MEDICAL SOCIETIES.

### PROCEEDINGS OF THE WILLS' HOSPITAL OPH- THALMIC SOCIETY, PHILADELPHIA, PA.

*Meeting of March 11th, 1901.*

DR. S. D. RISLEY in the Chair.

The members of the staff of Wills' Hospital in Philadelphia have formed themselves into an association known as the "Wills' Hospital Ophthalmic Society." The object of the association is to "promote the scientific usefulness of the institution by the discussion of papers and the exhibition of patients who have been under the care of the members of the attending staff." Meetings will be held twice a month and reports of the proceedings will be published.

#### SYMPATHETIC OPHTHALMITIS.

DR. FRANK FISHER presented a case of sympathetic ophthalmitis coming on after a panophthalmitis which had followed a cataract extraction, the patient being 64 years of age. He laid especial stress on the age at which the ophthalmitis had developed and the long period of time elapsing between the condition and the cataract extraction.

DR. WILLIAM ZENTMAYER inquired whether it is not rare for the disease to evidence itself in cases in which there is panophthalmitis.

In answer to DR. JOHN T. KRALL's question, whether the fundus of the sympathizing eye had been examined, DR. FISHER stated that when he saw the case the eyeground had become invisible.

DR. RISLEY asked whether subconjunctival injections of solutions of chloride of sodium had ever been tried by any of the members of the staff.

DR. WALTER L. PYLE believed that the occurrence of sympathetic inflammation after panophthalmitis depended upon the amount of destruction of the globe. He believed that if there was decided scleral rupture and escape of most

or the intra-ocular contents sympathetic ophthalmitis was not likely to follow.

DR. CHARLES A. OLIVER had found that all attempts to do useful iridectomy in such cases were futile, the iris-tissue being brittle and friable; while any obtained good results are rapidly lost. He had been successful in several instances by either the Critchett-Story operation or Tyrrell's method of drilling. He had never employed subconjunctival injections to any advantage nor as yet had made use of large doses of the alkalies, but thought if lymph-formation and circulation are good the former method might be of assistance.

#### FALSE MACULÆ.

DR. GEORGE C. HARLAN presented a case of false maculæ. The patient, a white man, 23 years of age, whose family and personal histories were negative, had squinted since childhood. He could use either eye. On February 23, 1900, he was admitted to the hospital with an esotropia of 40 degrees, preferably fixing with the left eye. A tenotomy of the right internal rectus muscle with an advancement of the corresponding external rectus was done, leaving a residual squint of about 10 degrees. Two weeks later similar operations were performed on the left eye with the result of an overcorrection of 10 degrees. On January 23rd of this year the perimeter showed 10 degrees of esotropia. Maddox rod gave 20 degrees of crossed diplopia. At this time a tenotomy of the right external rectus muscle was done, allowing both eyes to fix centrally, but the crossed diplopia remained the same. One week later it was found that the esotropia of 10 degrees still persisted. There was not any monocular polyopia. During fixation with both eyes a crossed diplopia of between 8 and 16 degrees with a hypophoria of one-half to two degrees could be determined.

DR. ZENTMAYER made mention of a case of divergent squint with homonymous diplopia occurring in a bright student.

DR. RISLEY stated that it was not infrequent to find diplopia after the correction of a divergent squint. He reported a case of cataract extraction on an amblyopic convergent eye in which vision after the operation equaled  $\frac{6}{12}$  of normal. A later operation upon the fellow, previously fixing, eye in which

vision was brought to more nearly normal, resulted in the patient afterwards having diplopia.

DR. FISHER reported a case in which a patient with marked divergence could at will associate the images of the two eyes and dislodge them to his greater comfort.

DR. OLIVER gave the details of a case of marked esotropia in early life with want of binocular fusion, that through operative interference and want of proper corrected lenses was transferred in early adult life into a case of pronounced though comfortable divergence with good vision in each eye. Recently, for cosmetic purposes, a colleague had so successfully attempted to bring about a parallelism in the two organs that a most troublesome series of diplopias took place, necessitating an operation to restore the originally induced condition of comfortable divergence.

DR. BERENS mentioned neuromuscular memory as being one of the factors in this type of cases, and desired to see careful studies from the standpoint of the psychologist made.

#### SUCCESSFUL EXTRACTION OF A FOREIGN BODY FROM THE VITREOUS CHAMBER.

DR. BERENS presented a case of successful extraction of a foreign body from the vitreous chamber with a resultant vision of  $\frac{6}{9}$  of normal. The patient, a man, 38 years of age, came to the hospital on February 12, 1901, with the history of having been struck in the left eye one hour previously by a chip-ping from a hammer. The external wound, which was vertical and three millimeters in size, was situated in the cornea five millimeters' distance from the nasal limbus. There was a corresponding wound in the iris. The pupil was four millimeters in size, and central, and the iris reacted well. Under atropine the pupil enlarged to eight millimeters. There were numerous vitreous opacities anteriorly and some posteriorly. The details of the eyeground were slightly veiled. Far down and to the inside two semilunar areas, one of which at first showed a suspiciously bright point, could be seen. Under Dr. Beren's guidance, the senior resident surgeon enlarged the corneal wound down and in, did an iridectomy, and placed a magnet tip towards the side of the retinal laceration. Three unsuccessful attempts being made in this direction, Dr. Berens



took the tip and inserted it twice, the second time down and out, recovering a piece of steel from that locality. Atropine was instilled and a bandage was applied. On the next day there was slight reaction, but there was not any pain. Two days later there was a moderate injection. At this time the patient could tell time on a watch at one-half meter's distance. In eight days' time the eye was quiet, and vision equaled  $\frac{6}{20}$  of normal. The eyeground could be distinctly seen. Four days after this vision had risen to  $\frac{6}{9}$  of normal, and the eye was quiet.

#### DOUBLE COLOBOMA OF THE IRIS, CHOROID AND OPTIC NERVE.

DR. OLIVER exhibited a case of double coloboma of the iris, choroid and optic nerve, with unusually small corneæ, in an Italian girl, 16 years of age. As far as could be ascertained there was not any history of inheritance, nor were there any other signs of congenital malformation present. The colobomata were in their usual positions, downwards and slightly inwards, those of the right eye being the larger. The characteristic curvilinear extension of the retinal vessels along the borders of the colobomatous areas could be plainly seen. The surfaces of the fundus colobomata, which were on a much deeper level than the rest of the eyegrounds, were quite ectatic in places. Refraction in the uninvolved muscular regions was myopic and slightly astigmatic. Corrected vision equaled about  $\frac{2}{3}$  of normal. The visual fields showed defects corresponding with the fundus abnormalities. Both optic nerve-heads were considerably enlarged. The retinae in the colobomatous areas were visible as thin, almost transparent membranes over and in which a few small vessels could be traced. The case was particularly interesting in the fact that in spite of the apparent microphthalmus the eyeballs were enormously lengthened in their antero-posterior diameters, giving high degrees of myopic refraction.

#### FOREIGN BODY EXPELLED FROM THE EYEBALL.

DR. OLIVER also showed a patient from whom a chip of iron had been spontaneously extruded from the eyeball two years after its entrance into the crystalline lens through the cornea and the iris. No reaction followed the expulsion of the foreign

body. The lens itself had been studded with brilliant cholesterol crystals for more than a year's time.

#### PLASTIC OPERATION FOR SYMBLEPHARON.

DR. BERENS presented a case showing the recent effects of a plastic operation for symblepharon in which the conjunctiva of the upper lid had been adherent to the cornea over more than two-thirds of its surface, entire freedom of motion being restored to the globe.

#### INTERSTITIAL KERATITIS.

DR. OLIVER gave a brief account of a case of interstitial keratitis occurring in the left eye of a man, 24 years of age, suffering from other stigmata of hereditary syphilis. He had treated and cured the patient's right eye for a similar attack of keratitis some six months previously. The point of interest in the case consisted in the fact that at the time of the patient's second admission to the hospital, some three weeks previously, the senior resident surgeon, Dr. Van Epps, discovered a sloughing chancroid involving almost the entire foreskin of the patient's penis, necessitating excision of the sloughing part of the organ.

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RESECTION OF THE SUPERIOR CERVICAL GANGLION OF THE SYMPATHETIC FOR GLAUCOMA, AND ITS RESULTS.—H.W. Dodd, F.R.C.S., reports a case of glaucoma occurring in a woman aged 44 years, in which the removal of the superior cervical ganglion on each side was immediately followed by a marked reduction to normal tension of the eyeballs. The patient's eyeballs remained soft for about two months, when symptoms of glaucoma reappeared, and a month later the eyes had returned to the same state as they were in before the operation was performed. Therefore, although in this case the immediate effects were extremely favorable for a few days, the permanent result of the operation for the cure of the glaucoma was *nil*. The central origin of chronic glaucoma may be a fact, but if it is so, the removal of the superior cervical ganglion apparently does not interrupt the connection with the eye. Either the connection is not by this route or some other means of communication is established very soon after the resection of the ganglion.—*Lancet*.

## ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. SHOEMAKER, M.D.  
ST. LOUIS, MO.

### PTERYGIA; PATHOLOGY AND TREATMENT.

M. F. Weyman (*Annals of Ophthalmology*, July, 1900) draws the following conclusions:

1. The head of a pterygium, though the most dreaded part on account of its possible encroachment on the pupil, is genetically an accident and secondary occurrence.

2. The origin and development of pterygia is to be sought in chronic conjunctival inflammation, causing loss of conjunctival elasticity and eventually shrinkage.

3. Pterygial degeneration having begun in the conjunctiva, the head is formed on the cornea on account of the kerato-scleral angle which, during extreme lateral excursions, favors detachment of the lamina vitrosa anterior and its epithelium.

4. The head ceases growing near or at the center of the cornea because the kerato-scleral angle is there effaced.

He supports these assertions by arguing from the pathological findings, which are well known. He does not believe in the causal relation of marginal ulcers of the cornea. He advises the removal of all pterygia. His reasons are:

1. A pterygium may become non-progressive, and with the removal of the cause, even atrophic, but such cases are very rare. It is the very slow growth that leads us to believe they are declining.

2. On account of the corneal cicatrix left at the site of the head.

3. Serious complications may become inevitable (relapsing tendency, strabismus, and even blindness) if we delay.

4. The operation, properly done, is absolutely harmless.

In operating, he first excises the pterygium, and then cuts away the vascular thickening beneath it. He then slides the conjunctiva over the denuded area, and puts in enough sutures to obtain very accurate approximation of the edges.

THE AMOUNT OF MYOPIA CORRECTED BY REMOVAL OF THE  
CRYSTALLINE LENS.

Edward Jackson (*Journal of the American Medical Association*, March 16, 1901) makes a plea for a more complete and exact study of the refraction and corneal curvature before and after extraction of the lens for myopia. He presents a table showing the dioptries of myopia before operation, the anticipated theoretical change for axial myopia, the average change noted, the maximum and minimum changes, and a number of cases of last degree of myopia, varying from 10 to 35 dioptries. The author also discusses the optical changes produced by removal of the crystalline lens in myopia due to excessive corneal curvature, in that due to excessive refractive influence of the lens, and in increased length of axis.

CONTRIBUTION TO THE STUDY OF THE PERFORATION OF THE  
SKULL BY SARCOMATA WHICH ORIGINATE IN THE ORBIT.

Vieusse (*Science Medicales des Bordeaux*, February 19, 1901) presents the following conclusions: Sarcomata which develop in the orbit are almost all melanotic in type; they are essentially malignant tumors, often causing the death of the patient. Their malignancy appears to be due to the pigmented material which they contain. In certain cases, not numerous it is true, the neoplasm penetrates into the skull by breaking through the walls of the orbit; it does not ordinarily cause cerebral trouble, because that part of the tumor which invades the cranial cavity is smaller and develops slowly. The perforation of the skull by a sarcoma of the orbit has no influence on the surgical treatment which these tumors demand.—*Recueil D' Ophthalmologie*, December, 1900.

REMOVAL OF THE RIGHT UPPER CERVICAL SYMPATHETIC  
GANGLION FOR THE RELIEF OF GLAUCOMA SIMPLEX.

D. H. Coover (*Philadelphia Medical Journal*, March 16, 1901) reports the case of a man, aged 65 years, upon whom this operation was performed. The immediate results of the operation were very encouraging, and were as follows: Tension was lowered to almost normal. There was contraction of the pupil and slight reaction. There was increase of the visual field and of visual acuteness, and the temporal field or nasal side of the retina improved, while the nasal field or temporal



side of the retina did not improve. These conditions remained until an attack of supposed "cold in the eyes" appeared, which proved to be nothing more than the return of the former disease—glaucoma. The writer believes that the operation is of no service in glaucoma simplex when vision has been reduced to zero, as the final outcome of this case demonstrates, but may be of service in arresting the disease in the earlier stages and in retaining vision before atrophic changes have taken place in the nerve, retina, and choroid. After miotics and iridec-tomies have failed to relieve the disease, it is then that we are justified in advising sympathectomy in hope of relief from permanent blindness. Even then there is no assurance that the glaucomatous attacks will not return months afterward. The operation when performed by an expert is not dangerous.

#### ALVEOLAR SARCOMA OF THE CHOROID.

William Posey and Edward A. Shumway (*Annals of Ophthalmology*, January, 1901) report a case and call attention to the following points as of interest:

1. The form of growth—infra-vascular angio-sarcoma—developing from the endothelial cells of the choroidal vessels.
2. The early appearance of the glaucomatous phenomena.
3. The marked inflammatory changes and hyaline degeneration of the iris and ciliary body.
4. Degeneration of the optic nerve.
5. The advanced age of the patient—seventy years.

#### OPHTHALMIC NOTES FROM THE TROPICS.

H. Campbell Highet (*Journal of Tropical Medicine*, February 15 and March 1, 1901) gives a list of eye diseases most frequently seen in Singapore and Bangkok. Syphilitic diseases of the eye show some peculiar features; syphilitic iritis appears to be much more severe in the tropics than in temperate climates. The results of treatment of tertiary lesions of the eye are usually quite satisfactory. Malarial affections of the eye amount to 2.2 per cent., and consist of œdema of the ocular and palpebral conjunctiva, keratitis (interstitial and superficial), cortical cataract, retinal hæmorrhage, and night-blindness. In leprosy the eye lesions are not marked in the anæsthetic form, but are severe in the tubercular form.

THE MODIFIED OPEN TREATMENT AFTER OPERATIONS  
ON THE EYEBALL.

E. Heimann (*Münchener Med. Wochenschrift*, February 19 and 26, 1901) condemns the customary tight dressing applied after operative procedures on the eyeball as exercising an undesirable amount of pressure, impeding the natural cleansing movements of the eyelids, being easily displaced and insecure, promoting the retaining of secretion and growth of bacteria, and causing the patient discomfort and annoyance. The treatment he recommends consists in the application of some form of dressing so combined as to relieve the eye itself from all pressure and to permit unrestricted motion of the lids. This can be constructed of wire, rubber, celluloid, etc., and will protect the wound against infection and mechanical injury without being open to the objections urged above.

## RHEUMATIC DISEASES OF THE EYE.

H. W. Woodruff (*Journal of the American Medical Association*, February 9, 1901) thinks the muscular, fibrous, and vascular tissues of the eye render it particularly susceptible to rheumatic affections. The author finds that chronic rheumatism very frequently causes iritis, episcleritis, scleritis, ocular palsy, glaucoma, and hyalitis. He considers scleritis the most serious, but also the most rare ocular disease due to rheumatism.

CONCERNING THE DEVELOPMENT OF ASTHENOPIA AND  
ERRORS OF REFRACTION.

Carl Schulen (*Annals of Ophthalmology*, January, 1901), in discussing the causes of asthenopia, mentions first auto-intoxication from the bowels, etc., after that the gouty diathesis, sexual disorders, and undescended testicles. He thinks one of the most frequent causes is a poorly-darkened sleeping room, especially if the sleep from any cause is not profound. The surroundings during sleep, especially in children, deserve careful attention. He thinks poorly-lighted school-rooms very rarely cause asthenopia, that astigmatism and myopia are rarely congenital but originate in early youth, are binocular in origin, being caused by abnormalities of the extra-ocular muscles, and that these originate mostly in the night during sleep.

REMARKS ON SCROFULOSIS AND TUBERCULOSIS, WITH A  
CONTRIBUTION TO TUBERCULOSIS OF THE  
CONJUNCTIVA.

W. Uhthoff\* (*Berliner Klinische Wochenschrift*, December 10, 1900) believes it justifiable to still further restrict the term "scrofulous." Especially in diseases of the eye the so-called "scrofulous," but not truly tuberculous affections, occur in tuberculous subjects. Tuberculosis itself frequently prepares the soil for the so-called scrofulous diseases. Although the phlyctenule most frequently occurs in scrofulous and tuberculous children, it should not be considered as directly characteristic of scrofula. The author has observed in his clinic, in a certain relatively small percentage of cases, that phlyctenules occur without the slightest symptoms or history of scrofula, tuberculosis, or previous disease of the eyes. Bacteriological examination of the phlyctenule has not yet demonstrated the etiological factor. According to the experiments upon animals, made by Valude and others, the healthy conjunctiva does not present a portal for the entrance of the tubercle bacilli. The author believes that as a whole the conjunctiva does not easily absorb infectious materials, as can be seen per example in diphtheritic conjunctivitis, which frequently exists without any systemic disturbances. In certain experiments that have been made with the toxin of pest, inoculation into the conjunctiva produced positive results by reason of the fact that the poison was conveyed through the lacrymonasal passages into the nasopharyngeal space. The author reports a case of tuberculosis of the conjunctiva occurring in a girl of 15 years, whose brother had died of tuberculosis. There had been a previous prelacrymal abscess on the left side that had undergone spontaneous suppuration, and had left a fistula with impediment of breathing on the affected side. The upper and lower palpebral conjunctivæ showed a condition which could easily, and was at first, diagnosed as trachoma. There was swelling of the preauricular and cervical glands. Examination of the nose and pharynx showed marked changes in the mucous membrane and the formation of granulation tissue. Microscopical examination of excised portions of the conjunctiva from the lower lid established with certainty that the process was of a tuberculous nature; but

those portions taken from the upper lid showed no signs of tuberculosis, but simply chronic hyperplasia. Regarding the latter it is still to be determined whether this non-specific portion of the process is caused by the tuberculous area. Either it is due to the toxic effect of the tubercle bacilli, which causes chronic thickening, by reason of a long continued influence, or the continued irritation due to the presence of these toxins may give rise to secondary changes in the conjunctiva without any specific influence being exerted by the toxins themselves; or finally, there may be a mixed infection in such a long exposed tuberculous area, whereby organisms other than the tubercle bacilli may give rise to the secondary involvement. That non-tuberculous changes may occur in tissues surrounding tuberculous areas is illustrated in other tuberculous inflammations of mucous membranes, such as pleurisy, meningitis, and arthritis.—*Phila. Med. Journal*, February 9, 1901.

AMBLYOPIA FOLLOWING THE INTOXICATING USE OF  
JAMAICA GINGER.

Edward Stieren (*Journal of the American Medical Association*, January 5, 1901) finds eight recorded cases in American ophthalmic literature of blindness following the ingestion of ginger. His case was that of a man, 36 years of age, who had been drinking heavily. On sobering up in a place where he could not obtain liquor, he consumed one dozen ounce-bottles of Jamaica ginger in one forenoon. About noon he fell into a deep stupor, from which he awoke about 3 P.M., totally blind. Treatment consisted in confinement to bed in a dark room; three hot foot baths were given during the night, and twenty grains each of calomel and compound jalap powder in divided doses; also two one-eighth grain doses of pilocarpine mur. hypodermically. The pilocarpine and calomel were continued for two days, when they were discontinued and twenty-grain doses of potassium iodide given. On the fifth day his vision was  $\frac{20}{30}$  in each eye. The lesion in these cases is believed to be a retrobulbar neuritis.